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Board

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

Ex parte YONG CHE,  
TAKESHI MORINOTO  
and  
MANABU TSUSHIMA

Appeal No. 2005-0178  
Application 10/091,502

MAILED

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U.S. PATENT AND TRADEMARK OFFICE  
BOARD OF PATENT APPEALS  
AND INTERFERENCES

HEARD: FEBRUARY 9, 2005

Before WALTZ, JEFFREY T. SMITH, and PAWLIKOWSKI, Administrative Patent Judges.

PAWLIKOWSKI, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal, under 35 U.S.C. § 134, from the examiner's final rejection of claims 1-16.

Claims 1 and 11 are representative of the subject matter on appeal, and are set forth below:

1. A secondary power source, which comprises:

a positive electrode consisting essentially of activated carbon, from 0.1 to 20% by weight of a conductive material, and 1 to 20% by weight of a binder based on the total mass of the positive electrode,

a negative electrode consisting essentially of a carbon material capable of doping and undoping lithium ions and 4 to 30% by weight of a binder based on the total mass of the negative electrode, and

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an organic electrolyte containing a lithium salt,

wherein the negative electrode has a density of from 0.6 to 1.2 g/cm<sup>3</sup>.

11. A secondary power source, which comprises a positive electrode containing activated carbon, a negative electrode containing a carbon material capable of doping and undoping lithium ions, and an organic electrolyte containing a lithium salt, wherein the negative electrode has a density of from 0.7 to 1.0 g/cm<sup>3</sup>.

The examiner relies upon the following references as evidence of unpatentability:

Kuruma (Japanese Patent) <sup>1</sup>	JP 2000-090972	Mar. 31, 2000
Nishimura	6,103,373	Aug. 15, 2000
Tsushima et al. (Tsushima '292)	6,294,292	Sept. 25, 2001
Honbo et al. (Honbo)	6,399,251	June 4, 2002
Tsushima (Tsushima '846)	6,558,846	May 6, 2003

The examiner has entered the following rejections:

- I. Claims 1, 2, 5-8, 11, 12, 15 and 16 stand rejected under 35 U.S.C. § 103 as being obvious over Kuruma in view of Honbo.
- II. Claims 3, 4, 9, 10, 13, and 14 stand rejected under 35 U.S.C. § 103 as being obvious over Kuruma in view of Honbo, and further in view of Nishimura.
- III. Claims 11 and 12 stand rejected under the judicially created doctrine of obviousness-type patenting as being unpatentable over claims 1, 3, 7 and 15 of U.S. Patent 6,294,292 in view

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<sup>1</sup>We rely upon, and cite from, a computer translation of this document into English, previously made of record.

of Honbo.

IV. Claims 11 and 12 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 3, 5, 7, and 8 of U.S. Patent No. 6,558,846 in view of Honbo.

We have carefully considered appellants' brief and reply brief<sup>2</sup>, and the examiner's answer. This review has led us to conclude that the examiner's rejections are not well-founded.

OPINION

I. The 35 U.S.C. § 103 rejection over Kuruma in view of Honbo, and each of the judicially created doctrine of obviousness-type patenting rejections<sup>3</sup>

On page 5 of the answer, the examiner recognizes that Kuruma<sup>4</sup> does not disclose the specific negative electrode density as claimed in appellants' claim 1. The examiner relies upon Honbo for teaching a negative electrode density that falls within the range claimed by appellants.

Appellants' position with regard to this rejection is set forth on pages 3-12 of the brief (appellants reiterate certain points made, in the reply brief). On page 6 of the brief, appellants argue that Honbo is directed to a complex oxide containing Li and Mn, which has a spinel type crystalline structure, and refer to column 2, lines 38-40 of Honbo.

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<sup>2</sup> We have reviewed all of the reply briefs of record. Any referral to the reply brief in this decision is a reference to the reply brief filed on July 26, 2004.

<sup>3</sup> These 3 rejections involve the same issue (whether Honbo is properly combinable with each of the primary references in each respective rejection).

<sup>4</sup> The examiner also recognizes that each of the Tsushima patents does not disclose the claimed negative electrode density. Answer, pages 10 and 12.

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Appellants argue that Honbo discloses that the density range of 0.95 to 1.5 g/cm<sup>3</sup> of the negative electrode material prevents the precipitation of Mn on and inside the negative electrode, and refer to column 4, lines 5-17.

Appellants also state that Honbo discloses that the density range of the negative electrode material should be selected to minimize a failure mode which is specific to the Li/Mn oxide composition of the positive electrode material of Honbo. Brief, page 6.

Appellants argue that their claimed secondary power source has a completely different kind of positive electrode material (i.e., activated carbon) which cannot fail in the manner described in Honbo. Appellants conclude that the specific failure mode described in Honbo is not possible in their claimed secondary power source or, for that matter, in the secondary power sources described in Kuruma or in the claims of each of the Tsushima patents. Brief, page 7.

Appellants argue that one of ordinary skill in the art of preparing secondary power sources would not have reasonably considered the disclosure of Honbo to apply to the secondary power source described in Kuruma or in the claims of the Tsushima patents, in which the positive material comprises activated carbon. Brief, page 7.

Accordingly, appellants state that Honbo does not reasonably suggest combining an activated carbon positive electrode with a carbon material negative electrode having a density in the claimed range. Brief, page 7.

On page 15 of the answer, the examiner rebuts and states that Honbo teaches a negative electrode active material, characterized in containing carbon, and having a density in the range larger than .9 g/cm and smaller than 1.5 g/cm, and the examiner concludes that Honbo's teaching clearly encompasses the

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use of a negative electrode material made of carbon, and having the claimed density range, regardless of the battery chemistry per se.

We agree with appellants' position for the following reasons.

The examiner's position fails to appreciate that before an examiner may combine the disclosures of two or more prior art references in order to establish prima facie obviousness, there must be some suggestion for doing so, found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598-99 (Fed. Cir. 1988). In the instant case, as pointed out by appellants, because of the differences between the secondary power source in Honbo and that of Kuruma or the Tsushima patents, there is no motivation to modify the density of the negative electrode material of Kuruma or the Tsushima patents such that the density is as taught in Honbo.

Of course, it is clear that Honbo teaches a negative electrode containing emulsive carbon as having a negative electrode density in the range as set forth in column 3, lines 57-61. However, the test for obviousness is what the combined teachings of the prior art references would have suggested to those of ordinary skill in the art. In re Young, 927 F.2d 588, 591, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991); In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). The examiner's position fails to explain a suggestion, by the references themselves, or in the knowledge generally available to one of ordinary skill in the art, for modifying the density of the negative electrode material of Kuruma or of the claims of the Tsushima patents, so as to have the density value as taught by Honbo.

While we observe, on page 16 of the answer, that the

examiner states that there is suggestion to combine the references because the applied references are found within the same field of endeavor and pertinent to each other because of the battery environment disclosed in the references, this is not the standard of a prima facie case of obviousness. In re Fine, supra.

Also, on page 17 of the answer, the examiner shifts the burden to appellants to show why Honbo's negative electrode density cannot function in a substantially similar battery environment. This is an incorrect position taken by the examiner. As pointed out by appellants in their reply brief, on page 2, the burden is on the examiner to present a prima facie case of obviousness. For the reasons discussed above, the examiner has failed to do so.

We also note that on page 10 of the brief, appellants discuss the examiner's position regarding the negative electrode density being a result effective variable. Appellants refer to In re Antonie, 559 F.2d 618, 621, 195 USPQ 6, 9 (CCPA 1977). This case stands for the proposition that there are exceptions to the general rule that optimization of a result effective variable is obvious. One exception is that the variable was not recognized to be result effective.

At the top of page 11 of the brief, appellants argue that the applied art discloses no range for a negative electrode density when used with a secondary power source of the type claimed by appellants, and of the type disclosed in Kuruma and of the type recited in the claims of the Tsushima patents.

On page 17 of the answer, the examiner actually agrees with appellants that the applied art fails to recognize that the negative electrode density is a result effective variable. Answer, page 18. The examiner, however, then concludes that the negative electrode density does not impart criticality to the

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secondary power source, and hence is not supportive of a patentable subject matter. In so doing, the examiner overlooks the above-mentioned case law.

Because it is not disputed by the examiner that the applied art fails to recognize that the negative electrode density is a result effective variable, it follows, according to In re Antonie, that appellants' claimed subject matter is unobvious. Id.

In view of the above, we determine the examiner has not set forth a prima facie case of obviousness. As such, we need not discuss any evidence in connection with unexpected results.

We therefore reverse the rejection under 35 U.S.C. § 103 as being obvious over Kuruma in view of Honbo.

We also reverse each of the rejections under the judicially created doctrine of obviousness-type double patenting for the same reasons that we reverse the rejection under 35 U.S.C. § 103 as being obvious over Kuruma in view of Honbo. As indicated, supra, each of the primary references applied in the rejections under the judicially created doctrine of obviousness-type double patenting did not teach appellants' claimed negative electrode density, and Honbo is not properly combinable with each of these primary references for the same reasons that Honbo is not properly combinable with Kuruma.

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**II. The Other Rejection**

The other rejection before us in this appeal (the rejection of claims 3, 4, 9, 10, 13, and 14 under 35 U.S.C. § 103 as being obvious over Kuruma in view of Honbo, and further in view of Nishimura), is also reversed because Nishimura does not cure the aforementioned deficiencies of Kuruma in view of Honbo.

Hence, for the same reasons, discussed supra, we reverse the rejection of claims 3, 4, 9, 10, 13, and 14 under 35 U.S.C. § 103 as being obvious over Kuruma in view of Honbo, and further in view of Nishimura.

**III. Conclusion**

Each of the rejections is reversed.

**REVERSED**

*Thomas A. Waltz*  
Thomas A. Waltz )  
Administrative Patent Judge )  
*Jeffrey T. Smith*  
Jeffrey T. Smith )  
Administrative Patent Judge )  
*Beverly A. Pawlikowski*  
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